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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/099,659	03/15/2002	Jeffrey A. Tilton	25102A	2971

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EXAMINER	
BOYD, JENNIFER A	

ART UNIT	PAPER NUMBER
1771	

DATE MAILED: 11/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/099,659	TILTON, JEFFREY A.	
	Examiner	Art Unit	
	Jennifer A. Boyd	1771	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1, 5 – 7 and 9 – 28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1, 5 – 7 and 9 – 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The Applicant's Amendments and Accompanying Remarks, filed September 2, 2005, have been entered and have been carefully considered. Claims 1 and 27 are amended, claims 2 – 4, 8 and 29 are cancelled and claims 1, 5 – 7 and 9 – 28 are pending. In view of Applicant's amendments to independent claims 1 and 27 eliminating the term "about" before the limitation of "18 – 22 microns", the Examiner has revised the previously applied rejection as being obvious over Goettmann below. The present invention as currently is unpatentable for reasons herein below.

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 103

3. Claims 1, 5 – 7 and 9 – 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goettmann (US 5,851,355).

Goettmann is directed to a nonwoven composite web useful as a support for a reverse osmosis membrane (column 1, lines 5 – 10).

As to claims 1 and 27, Goettmann teaches a composite material comprising polymeric staple fibers, a first fiber consisting of, at least in part, of a first thermoplastic binder material which melts at a temperature less than the melting temperature of the polymeric staple fibers, and a second binder fiber consisting of, at least in part, of a second thermoplastic binder material

which melts at a second melting temperature less than the first melting temperature (column 2, lines 40 – 55). Goettmann teaches that the composite material comprises 5 to 40% by weight of a first polyester staple fiber, 0 to 60% by weight of a second polyester staple fiber, 15 to 50% by weight of a first thermoplastic binder fiber and 1 to 10% by weight of a second thermoplastic binder fiber (column 3, lines 55 – 68). Goettmann teaches that the first and second thermoplastic binder fibers are sheath-core bicomponent fibers (column 2, lines 55 – 65). The Examiner equates the polymeric staple fibers to Applicant's "staple fibers", the first thermoplastic binder material to Applicant's "high melt bicomponent fibers" and the second thermoplastic binder material to Applicant's "low melt bicomponent fibers". Goettmann teaches that the first and second bicomponent binder fibers has a co-polyester sheath and a polyester core (column 2, lines 55 – 65). It is known in the art that Kuraray EP-101 fibers and N-720H fibers (column 4, lines 1 – 20) comprise polyethylene terephthalate as the polyester component.

As to claims 9, 12 and 13, Goettmann teaches that the staple fibers comprise polyester fibers (column 2, lines 55 – 60).

As to claims 14 - 15 and 17 - 18, Goettmann teaches that the first and second bicomponent binder fibers have a co-polyester sheath and a polyester core (column 2, lines 55 – 65). It is known in the art that Kuraray EP-101 fibers and N-720H fibers (column 4, lines 1 – 20) comprise polyethylene terephthalate as the polyester component.

As to claims 16, 19 and 28, Goettmann teaches that the second thermoplastic binder fibers, or "low melt bicomponent fibers", have a co-polyester sheath that melts at 225°F (107.2°C) (column 2, lines 55 – 65). Goettmann teaches that the first thermoplastic binder fibers,

or "high melt bicomponent fibers", have a co-polyester sheath that melts at 375°F (190.5°C) (column 2, lines 60 – 65).

As to claims 1, 5 and 27, Goettmann discloses the claimed invention except for that the average fiber diameter of the low melt bicomponent fiber, the high melt bicomponent fiber and staple fiber have a diameter between 18 – 22 microns as required by claim 1, the average diameter is between 18 – 30 microns as required by claim 27, the low melt bicomponent fiber is present in the amount of 20 – 60% by weight as required by claims 1 and 27 and that the density is between about 1.0 – 10 pcf as required by claims 5 and 27. It should be noted that the amount of low melt bicomponent fibers, fiber diameter and density are result effective variables. Goettmann teaches that variations and modifications of the composition may be devised and are within the scope and spirit of the invention. Goettmann teaches that it would be obvious to one of ordinary skill in the art that the range and blend of bicomponent fibers may be varied to effect the desired physical properties. Goettmann teaches that the physical properties (i.e., density) as well as the performance of the sheet material can be altered to fit a particular set of physical specifications (column 6, lines 18 – 43). Additionally, it is known in the art to adjust the fiber diameter of the composition in order to adjust the properties of the composite. It should be noted that Goettmann positively requires that the staple fibers be within the range of 0.2 to 3.0 denier (column 3, lines 5 – 10). In the Remarks submitted on 5/28/05, the Applicant submits that the denier range of 0.2 – 3.0 denier is equivalent to a diameter of 4.5 – 17.6 microns, which touches Applicant's claimed range when rounded. It would have been obvious to one having ordinary skill in the art at the time the invention was made to create an insulating material that the average

fiber diameter of the low melt bicomponent fiber, the high melt bicomponent fiber and staple fiber have a diameter between about 18 – 22 microns as required by claim 1, the average diameter is between 18 – 30 microns as required by claim 27, the low melt bicomponent fiber is present in the amount of 20 – 60% by weight as required by claims 1 and 27 and that the density is between about 1.0 – 10 pcf as required by claims 5 and 27, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). In the present invention, one would have been motivated to optimize the average fiber diameter, percentage of low melting bicomponent fibers and density to create an insulating material with optimal strength and flexibility having the desired performance of the final product.

As to claims 5 – 7, 10 – 11 and 21 – 26, although Goettmann does not explicitly teach the claimed flexural strength of between about 40 – 1200 psi as required by claim 5, the material has the acoustical absorption coefficients as shown in claims 6, 10 and 21 - 26, the material has thermal conductivity value of between about 0.20 and 0.30 at 2 pcf density as required by claims 7 and 11, it is reasonable to presume that the claimed flexural strength of between about 40 – 1200 psi as required by claim 5, the material has the acoustical absorption coefficients as shown in claims 6 and 10, the material has thermal conductivity value of between about 0.20 and 0.30 at 2 pcf density as required by claims 7 and 11 and the acoustical absorption coefficients as shown in claims 21 – 26 is inherent to Goettmann. Support for said presumption is found in the use of like materials (i.e. a nonwoven material comprising polyester staple fibers and two types of polyester/copolyester bicomponent fibers in the desired proportions and fiber diameter ranges)

which would result in the claimed property. The burden is upon the Applicant to prove otherwise. *In re Fitzgerald* 205 USPQ 594. In addition, the presently claimed property of flexural strength of between about 40 – 1200 psi as required by claim 5, the material has the acoustical absorption coefficients as shown in claims 6 and 10, the material has thermal conductivity value of between about 0.20 and 0.30 at 2 pcf density as required by claims 7 and 11 and the acoustical absorption coefficients as shown in claims 21 – 26 would obviously have been present once the Goettmann product is provided. Note *In re Best*, 195 USPQ at 433, footnote 4 (CCPA 1977).

As to claim 20, Goettmann discloses the claimed invention except for that the high melt bicomponent fiber can be substituted in part or whole by crystalline/semi-crystalline bicomponent fibers having a melt flow temperature of about 150 to about 180 degrees Celsius. It would have been obvious to one having ordinary skill in the art at the time the invention was made to replace the high melt bicomponent fibers in part or in whole with crystalline/semi-crystalline bicomponent fibers since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of design choice. *In re Leshin*, 125 USPQ 416. Goettmann teaches that binder fibers different than those specified may be used, so long as the binder fiber contains thermoplastic material having a melting point lower than that of the polyester fibers and providing adequate bonding of those polyester fibers to form a non-woven web with a high tensile strength (column 6, lines 28 – 35). In the present invention, one would have been motivated to replace the high melt bicomponent fiber in part or whole with crystalline/semi-crystalline bicomponent fibers having a melt flow

temperature of about 150 to about 180 degrees Celsius due to the desire to increase the range of applications of the composite material.

Response to Arguments

4. Applicant's arguments filed September 2, 2005 have been fully considered but they are not persuasive.

Applicant argues that Goettmann does not teach incorporating 20 – 60% by weight of low melt bicomponent fibers. The Examiner has submitted that it would have been obvious to optimize the amount of low melt bicomponent fibers. Goettmann provides support to adjust various parameters such as the amount of bicomponent fibers. Goettmann teaches that it would be obvious to one of ordinary skill in the art that the range and blend of bicomponent fibers may be varied to effect the desired physical properties (column 6, lines 18 – 43). Absent any unexpected results for Applicant's claimed range, the Examiner submits that it is obvious to optimize the amount of bicomponent fibers to 20 – 60% by weight of the insulating material.

Applicant argues that Goettmann does not teach an average fiber diameter of 18 – 22 microns. In the Remarks submitted on 5/28/05, the Applicant submits that the denier range of 0.2 – 3.0 denier is equivalent to a diameter of 4.5 – 17.6 microns, which touches Applicant's claimed range when rounded. Goettmann provides support to adjust various parameters in order to tailor the desired physical properties (column 6, lines 18 – 43). Absent any unexpected results for Applicant's claimed range, the Examiner submits it is obvious to optimize the diameter of the polyester staple fibers. Applicant argues that Goettmann teaches that the sheet porosity is an important feature. If the sheet porosity is too low, the fibers will not attach to the support

substrate. Conversely, if the sheet porosity is too high, the fibers penetrate the support too much and do not form a film as desired on the surface. The Examiner does agree that Goettmann does state that fiber deniers and lengths are selected to achieve the desired sheet porosity. However, it is unclear that fibers having a slightly higher diameter than desired by Goettmann would create a sheet with unsuitable porosity. Goettmann indicates that the porosity is also controlled by fiber length so the diameter of the fibers are not the only parameter that affects the porosity. Additionally, Goettmann does indicate that it is within the scope of the invention to modify various parameters based on desired physical properties. The burden is upon the Applicant to demonstrate that the use of fibers having a diameter of 18 rather than 17.8 would adversely affect the porosity of Guttmann's product. Alternatively, if the Applicant submits that the claimed fiber diameter range has unexpected results, the burden is upon the Applicant to demonstrate that the claimed ranges are not a matter of simple optimization. The Examiner highly suggests to the Applicant to submit a 37 CFR 1.132 Declaration to establish unexpected results. In the Declaration, the Applicant should compare a sufficient number of tests both inside and outside the claimed range to show the criticality of the claimed range. *In re Hill*, 284 F.2d 955, 128 USPQ 197 (CCPA 1960) and must compare the claimed subject matter with the closest prior art to be effective to rebut a prima facie case of obviousness.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Boyd whose telephone number is 571-272-1473. The examiner can normally be reached on Monday thru Friday (8:30am - 6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrel Morris can be reached on 571-272-1478. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer Boyd
November 18, 2005

Ula C. Ruddock
Primary Examiner
Tech Center 1700